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DECLARATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor of the subject matter which is claimed and entitled

MULTILAYER FILM AND PROCESS FOR PRODUCING THE SAME

☐ which is described in the specification and claims

☐ attached hereto.

☐ filed on _____

Application Serial No. _____

and was amended on _____
(*if applicable*)

■ which is described in Japan Application No. JP10-178411 filed on June 25,1998 and JP11-141180 filed on May 21, 1999.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

1. FULL NAME OF SOLE OR FIRST INVENTOR	INVENTOR'S SIGNATURE	DATE
Kenji HATADA	Kenji Hatada	Dec. 25, 2003
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JP10-178411

(EXAMPLE 1 and COMPARATIVE EXAMPLES 1 AND 2)

Aluminum was deposited on a surface-treated, biaxially stretched polypropylene rolled film with a thickness of 18 μm (commercial name: Torayfan made by Toray Industries, Inc.) in a vacuum evaporator evacuated to 5×10^{-3} Pa such that the absorbance OD was 2.3. Next, an organic compound shown in Table 1 that was atomized with an ultrasonic vibrator was supplied to an organic compound vaporizer heated at 200°C and was deposited on the aluminum film through a slit provided in the organic vaporizer. The organic compound content supplied to the ultrasonic vibrator was controlled such that the thickness of the organic layer deposited was 0.06 μm.

Next, a high voltage of -10 KV was applied to a cathode that was disposed in and was insulated from a box anode filled with gaseous argon to generate glow discharge (plasma) in the anode. The organic layer on the deposited aluminum film was irradiated with high-energy electrons and argon ions accelerated by an electric field and partly conducted through a slit provided in the anode. This process was continuously performed for a film with a length of 21,000 m at a deposition rate of 500 m/min.

In EXAMPLE 1, 30 mol/mol percent of oxygen gas was added to gaseous argon. In COMPARATIVE EXAMPLE 1, the

operation of the ultraviolet resonator stopped 10 minutes later from the start of the evaporation and thus the evaporation was stopped. The vacuum evaporator and the organic vaporizer were opened. A polymer was deposited in the interior. In COMPARATIVE EXAMPLE 2, the evaporation operation was stable for about 45 minutes, and a sample could be prepared substantially over the entire rolled film. COMPARATIVE EXAMPLE 2 employed a conventional aluminum-deposited film without a polymer layer.

[Table 1]

	Organic monomer	Lamination ability		Oxygen barrier (cc/m^2/day)	
		Processability	Adhesion	Initial	6% stretched
EXAMPLE 1	Linolenic acid	Satisfactory	Satisfactory	0.2	0.2
COMPARATIVE EXAMPLE 1	Tetraethyleneglycol diacrylate	Wrinkle generation	Not satisfactory	0.1	0.1
COMPARATIVE EXAMPLE 2	-	Satisfactory	Satisfactory	0.5	20

JP11-141180

[EXAMPLE]

Aluminum was deposited on a surface-treated, biaxially stretched polypropylene rolled film with a thickness of 18 μm in a vacuum evaporator evacuated to 5×10^{-3} Pa such that the absorbance OD was 2.3. Next, using an apparatus shown in Fig. 1, safflower oil atomized with an atomizer including an electrode that was energized to 2 KV was supplied to a vaporizer heated at 200°C and was deposited on the aluminum film through an opening provided in the organic vaporizer. The amount supplied was controlled such that the thickness of the safflower oil deposited was 0.07 μm. Next, radiofrequency waves with a peak voltage of 600 V were applied to a high-voltage applying electrode that was grounded in and was insulated from a box ground electrode filled with a gaseous mixture (oxygen concentration: 50 mol/mol percent) of argon and oxygen to generate glow discharge (plasma) in the ground electrode. The safflower oil layer on the deposited aluminum film was irradiated with the plasma partly conducted through a slit provided in the ground electrode to cure the safflower oil layer. This process could be reliably performed for a film with a length of 21,000 m at a deposition rate of 500 m/min.